CLAIMS

What is claimed is:

1.   A method comprising:

receiving carrier phase estimation information;

estimating a carrier phase based on the carrier phase estimation information by comparing a property of the carrier phase estimation information with a value that is expected assuming phase lock.

2.   The method of claim 1, wherein receiving the carrier phase estimation information comprises receiving one or more points from a communications constellation.

3.   The method of claim 2, wherein estimating the carrier phase comprises comparing a phase associated with the one or more points with a phase value that is expected assuming phase lock.

4.   The method of claim 3, wherein the phase comprises an average phase.

5.   The method of claim 2, wherein estimating the carrier phase comprises comparing an amplitude associated with the one or more points with an amplitude value that is expected assuming phase lock.

6.   The method of claim 1, wherein receiving the carrier phase estimation information comprises receiving a sequence of a plurality of points from a communications constellation, and wherein estimating the carrier phase comprises comparing an average phase of the sequence with an average phase value that is expected assuming phase lock.

7.   The method of claim 1, further comprising:

determining a carrier phase correction factor based on the comparison of the property of the information with the value that is expected assuming phase lock;

determine a local phase; and

determining the carrier phase by applying the carrier phase correction factor to the local phase.

8.   The method of claim 1, wherein the carrier phase estimation information comprises a start-up signal defined for an ITU-T Recommendation V.34 or later modem.

9.   The method of claim 8, wherein the start-up signal comprises a start-up signal that is selected from the group consisting of S, S-bar, Sh, and Sh-bar.

10.   The method of claim 1, further comprising iterating through receiving additional carrier phase estimation information and re-estimating the carrier phase based on the additional carrier phase estimation information until a comparison indicates that the property of the received information is within a threshold of the value expected assuming phase lock.

11.   The method of claim 1, further comprising using the estimated carrier phase to aid phase lock with a PLL.

12.   An article comprising:

a storage medium having stored thereon data representing sequences of instructions that if executed cause a component of a communication system to estimate a carrier phase based on carrier phase estimation information by

comparing a property of the carrier phase estimation information with a value that is expected assuming phase lock.

13.   The article of claim 12, wherein the instructions to estimate the carrier phase further comprise instructions that if executed cause the component to:

determine a carrier phase correction factor based on the comparison of the property of the demodulated carrier phase estimation information with the value that is expected assuming phase lock; and

estimate the carrier phase by applying the carrier phase correction factor to a local phase.

14.   The article of claim 12, wherein the instructions to estimate the carrier phase further comprise instructions that if executed cause the component to compare a phase associated with the carrier phase estimation information with a phase value that is expected assuming phase lock.

15.   The article of claim 12, wherein the instructions to estimate the carrier phase further comprise instructions that if executed cause the component to compare an amplitude associated with the carrier phase estimation information with an amplitude value that is expected assuming phase lock.

16.   The article of claim 12, wherein the carrier phase estimation information comprises one or more points from a communications constellation.

17.   The article of claim 12, wherein the carrier phase estimation information comprises a start-up signal defined for an ITU-T Recommendation V-.34 or later modem.

18.   The article of claim 12, implemented in a computer system comprising a DRAM memory.

19.   The article of claim 12, implemented in a portable radio communication device comprising a Flash memory.

20.   An apparatus comprising:

a correction factor determination system to determine a carrier phase correction factor by comparing a property of carrier phase estimation information with a value that is expected assuming phase lock;

a phase generator to generate a phase; and

a phase combiner coupled with the correction factor determination system to receive the carrier phase correction factor, and coupled with the phase generator to receive the phase, the phase combiner to estimate a carrier phase by combining the carrier phase correction factor with the phase.

21.   The apparatus of claim 20, wherein the correction factor determination system comprises a correction factor determination system to compare a phase associated with the carrier phase estimation information with a phase value that is expected assuming phase lock.

22.   The apparatus of claim 20, wherein the correction factor determination system comprises a correction factor determination system to compare an amplitude associated with the carrier phase estimation information with an amplitude value that is expected assuming phase lock.

23.   The apparatus of claim 20, wherein the carrier phase estimation information comprises a sequence of points from a communications constellation, and wherein

the correction factor determination system comprises a correction factor determination system to compare an average phase of the sequence with an average phase value that is expected assuming phase lock.

24.   The apparatus of claim 20, wherein the phase combiner is coupled with a PLL to provide the estimated carrier phase to the PLL.

25.   The apparatus of claim 20, implemented in a computer system comprising a DRAM memory.

26.   The apparatus of claim 20, implemented in a portable radio communication device comprising a Flash memory.

27.   An apparatus comprising:

a Flash memory to store information;

a communication device to receive information from a communication system; and

a carrier phase estimation system to estimate a carrier phase, the carrier phase estimation system including:

a correction factor determination system to determine a carrier phase correction factor by comparing a property of carrier phase estimation information with a value that is expected assuming phase lock;

a phase generator to generate a phase; and

a phase combiner coupled with the correction factor determination system to receive the carrier phase correction factor, and coupled with the phase generator

to receive the phase, the phase combiner to estimate a carrier phase by combining the carrier phase correction factor with the phase.

28. The apparatus of claim 27, wherein the carrier phase estimation information comprises a sequence of points from a communications constellation, and wherein the correction factor determination system comprises a correction factor determination system to compare a property selected from the group consisting of a phase and an amplitude with a corresponding phase or amplitude value that is expected assuming phase lock.

29. The apparatus of claim 27, wherein the property and the value comprise an average property and an average value.

30. The apparatus of claim 27, further comprising:

a bus to communicate information; and

a processor coupled with the bus to process information.